

### REMARKS

Claims 3, 4 and 6-19 are pending. No new matter has been added by way of the present submission. For instance, newly added claims 16-19 are supported by Example 1 and Example 2, which disclose a particle size of 2.5 $\mu$ m and 1.3 $\mu$ m, respectively. Thus, no new matter has been added.

In view of the following remarks, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

#### Issues under 35 U.S.C. § 103(a)

1) The Examiner has rejected claims 3-4 and 6-15 under 35 U.S.C. § 103(a) as being obvious over JP 2001-233661A (hereinafter referred to as JP '661) in view of Lin, U.S. Patent 5,518,980 (hereinafter referred to as Lin '980).

2) The Examiner has also rejected claims 3-4 and 6-15 under 35 U.S.C. § 103(a) as being obvious over Kikuchi et al., U.S. Patent 4,650,523 (hereinafter referred to as Kikuchi '523) in view of Lin '980.

3) Lastly, the Examiner has rejected claims 3-4 and 6-15 under 35 U.S.C. § 103(a) as being obvious over Simeonov et al., U.S. Patent 4,205,998 (hereinafter referred to as Simeonov '998) in view of Lin '980.

Applicants respectfully traverse these rejections.

#### The Present Invention and its Advantages

Independent claim 3 relates to a cement composition comprising 100 parts by weight of a cement and 0.05 to 10 parts by weight of calcium hydroxide particles having an average particle

diameter of 3  $\mu\text{m}$  or less as a cement setting accelerator for shortening the initial and final setting times of said cement composition.

Independent claim 4 is directed to a process for manufacturing a cement composition comprising adding a water slurry of calcium hydroxide particles having an average particle diameter of 3  $\mu\text{m}$  or less as a cement setting accelerator for shortening the initial and final setting times of said cement composition to a cement.

Due to the fact that the cement composition of claim 3 comprises very fine calcium hydroxide particles (average particle diameter of 3  $\mu\text{m}$  or less), unexpectedly superior results are obtained by the present invention. For instance, a remarkable effect of significantly shortening the setting times is obtained (see page 4, lines 9-11 and page 10, Table 1 of the present specification) by the present invention. More specifically, as is evident from a comparison between Examples 1-3 and Comparative Examples 2-5 of Table 1, when the particle diameter of the calcium hydroxide particles in use is larger than 3  $\mu\text{m}$ , the initial and final setting times become quite long.

To further strengthen the evidence already on record (for instance, see the 37 CFR § 1.132 Declaration of Hiroyoshi Kato submitted on July 9, 2008), Applicants have prepared an additional 1.132 Declaration, attached hereto.

#### Distinctions between the Present Invention and the Cited Art

There exists no reason to modify any of the primary references (JP '661, Kikuchi '523 and Simeonov '998) with the secondary disclosure of Lin '980.

JP '661 discloses a dry cement concrete including a hydroxide, such as calcium hydroxide, in an amount of 0.3 – 1% mass per 100% mass of cement. However, JP '661 fails to disclose the particle diameter of the calcium hydroxide in use.

Kikuchi '523 teaches a cement accelerating element comprising calcined alunite, a carbonate and lime. However, Kikuchi '523 fails to disclose or suggest the particle size of the lime.

Simeonov '998 discloses a cement accelerating agent comprising calcium oxide in the form of hydrated lime. The mixture is added to a cement composition. However, similar to the above two references of JP '661 and Kikuchi '523, Simeonov '998 fails to disclose or suggest the particle size of the calcium hydroxide.

The Examiner attempts to cure these deficiencies with the disclosure of Lin '980. As will be seen below, this is incorrect.

Lin '980 teaches a calcium hydroxide slurry having an average primary particle size of about 0.05 to about 5.0  $\mu\text{m}$  (see column 5, lines 39-14). However, the calcium hydroxide is used as a sulfur oxide (SO<sub>x</sub>)-reducing agent in the composition of Lin '980 (see column 4, lines 59-61). Lin '980 fails to disclose that calcium hydroxide having an average particle size of about 0.05 to about 5.0  $\mu\text{m}$  should or could serve as a cement setting accelerator.

Applicants stress that one of skill in the art would never have even consulted the disclosure of Lin '980, much less applied the teachings of Lin '980 to any of the primary references with a reasonable expectation of success. For at least this reason, Applicants strongly urge the Examiner to recognize that there exists no *prima facie* case of obviousness.

Further, even if these references are combined together, a point not conceded, they still fail to suggest the present invention achieving excellent setting properties, as described above and in the enclosed Declaration, by using calcium hydroxide having an average particle diameter of 3  $\mu\text{m}$  or less. Such results are completely unexpected and thus render any hypothetical *prima facie* case of obviousness moot.

A review of the latest arguments of the Examiner reveal that the Examiner believes that the declarative evidence submitted in the last response was insufficient. Applicants now supplement the record with additional evidence.

In this regard the Examiner is requested to refer to Table B and Figure 1 of the attached Declaration. Figure 1 has been prepared by plotting the data contained in Table B. As seen in Figure 1, the initial and final setting times drastically change when the average particle diameter of calcium hydroxide exceeds 3  $\mu\text{m}$ . The new evidence includes data points generated with calcium hydroxide having an average particle diameter of 3.3  $\mu\text{m}$  (see Comparative Run 5) as well as an average particle diameter of 2.7  $\mu\text{m}$  (see Run 4), both of which are very close to the claimed threshold of 3  $\mu\text{m}$ . It is noted that Runs 1-3 and Comparative Runs 1-3 are the same as the previous Declaration).

Advantageously, the present invention achieves shortened setting times when the average particle diameter is 3  $\mu\text{m}$  or less. Such results are clearly illustrated in the attached Declaration. Particular attention should be paid to Figure 1, which clearly illustrates the criticality of the average particle diameter being 3  $\mu\text{m}$  or less.

In summary, Applicants submit that there clearly exists no *prima facie* case of obviousness based upon any of JP '661, Kikuchi '523, Simeonov '998, or Lin '980, regardless of

the combinations thereof. Applicants further stress that even if the Examiner has hypothetically presented valid *prima facie* cases of obviousness, a point not conceded, the present invention still achieves unexpectedly superior results compared with the prior art. Thus, any hypothetical *prima facie* case of obviousness is moot.

In view of the above, Applicants respectfully submit that the present claims are in condition for allowance. The Examiner is thus requested to withdraw all rejections and allow the currently pending claims.

If the Examiner has any questions or comments, please contact Craig A. McRobbie, Reg. No. 42,874 at the offices of Birch, Stewart, Kolasch & Birch, LLP at the number provided below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under § 1.17; particularly, extension of time fees.

**Dated: December 11, 2008**

Respectfully submitted,

By 

Craig A. McRobbie  
Registration No.: 42,874  
BIRCH, STEWART, KOLASCH & BIRCH, LLP  
8110 Gatehouse Road  
Suite 100 East  
P.O. Box 747  
Falls Church, Virginia 22040-0747  
(703) 205-8000  
Attorney for Applicants

Attachment: Declaration 1.132